ENTOMOLOGICAL NEWS

MARCH 1953

Vol. LXIV **No. 3**

CONTENTS

Weiss—Thomas Say's home in New Harmony, Indiana 57

Cook—The Trichodectid of the hog-nosed skunk 60

Morse and Blickle—The Trichoptera of New Hampshire 68

Notes and News in Entomology

Richards—The role of the epidermis 73

Current Entomological Literature 76

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
1900 RACE STREET, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $5.00 domestic; $5.30 foreign; $5.15 Canada. Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for in paragraphs (d-2), Section 34.40, P. L. & R. of 1948, authorized April 19, 1943.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at Prince and Lemon Sts., Lancaster, Pa., and the Academy of Natural Sciences, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: E. J. F. MARX, V. S. L. PATE, M. E. PHILLIPS, and J. A. G. REHN.

Subscription price, per yearly volume of 10 numbers: Domestic, $5.00; Foreign, $5.30; Canada, $5.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages may be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

ILLUSTRATIONS. Authors will be charged as follows: For text-figures, the cost of engraving; for insert plates (on glossy stock), the cost of engraving plus the cost of printing. The size of text-figures or plates when printed must not exceed 4 x 6 inches.

All blocks will be sent to authors after publication. It is not advisable to print half-tones as text-figures.

TABLES: Authors will be charged the setting of all tables exceeding 2 inches in height.

SEPARATA: Twenty-five extras of an author's contribution will be given free. They will be "run of form," without removal of extraneous matter, folded but not bound, uncut and without cover.

Authors wishing more than the 25 separates must so advise the Editor or the printer. See bottom of this page. The Editor requests that authors state the number of separates desired in a letter accompanying their manuscript.

SEPARATES of articles without covers, without extraneous matter, will be furnished by the printer at the following prices: 1–4 pages, 25 copies, $3.13; 50 copies, $3.13; 100 copies, $3.75. 5–8 pages, 25 copies, $5.00; 50 copies, $5.00; 100 copies, $5.94. 9–12 pages, 25 copies, $7.81; 50 copies, $7.81; 100 copies, $9.06. Covers: first 50, $3.44; additionals at .025 cents each. Plates, printed on one side: first 50, $2.50; additional at 0.188 cents each. Transportation charges will be extra. THE LANCASTER PRESS, INC., Lancaster, Pa.

ENTOMOLOGICAL NEWS

VOL. LXIV MARCH, 1953 No. 3

Thomas Say's Home at New Harmony, Indiana

By HARRY B. WEISS

Each of the first four numbers of ENTOMOLOGICAL NEWS for 1895, contains a brief paper by Professor F. M. Webster dealing with the visit that he made to New Harmony during the winter of 1888, at which time he was a guest of "the late Col. and Mrs. Richard Owen" both of whom lived in New Harmony and knew Thomas Say during the nine years (1826–1834) that he lived there. During Webster's visit Col. Owen, who was close to ninety years old, and his wife showed him many places with which Thomas Say was associated. Webster's papers are illustrated by photographs and the one in the February, 1895 NEWS shows "Say's Home at New Harmony," before he moved into the Maclure house where he died Oct. 10, 1834. In the March NEWS, the Maclure house is illustrated and it is stated that at one time this property "seems to have been transferred to Mr. and Mrs. Say, probably by either Alexander or William Maclure, and later sold by the Says to David Dale Owen."

In "Thomas Say, Early American Naturalist" (1931), both of these photographs were reproduced together with an additional one entitled "Rappite House, Number 5, New Harmony, Indiana. Said to have been the home of Thomas Say in 1829–1830," that was supplied by Professor J. Speed Rogers and Dr. Charles P. Alexander who had obtained it during a visit to New Harmony.

A little over seven years after the appearance of "Thomas Say, Early American Naturalist" or on March 9, 1938, I received a letter from Miss M. E. Fauntleroy of New Harmony saying that she was shocked to find, in that book, a picture of

the old Schnee home labelled as a former home of Thomas Say. When the book had appeared in 1931 she had gone to Mrs. Nora C. Fretageot, librarian of the Workingman's Institute at New Harmony, and demanded an explanation for advising me that the old Schnee house had been occupied by Thomas Say. No explanation was forthcoming. As a matter of fact the photograph and caption were supplied to me by Professor J. Speed Rogers and not by Mrs. Fretageot.

In subsequent letters received from Miss M. E. Fauntleroy during March, 1938, at which time Miss Fauntleroy was eighty years of age and Mrs. Fretageot had died about a year previously, it is claimed that Mr. and Mrs. Say lived in the Old Fauntleroy Home. An aunt, of Miss Fauntleroy, who lived to be ninety-four often spoke of her association with the Says while they were living in No. 53, as it was known during the early times. A Dr. Murphy who came to New Harmony during the regime of the Rappites lived in the Old Fauntleroy Home for seven years during his old age and he too spoke to Miss Fauntleroy of the Says living in No. 53 and of their removal from No. 53 to Maclure's home, which burned in 1843. When George B. Lockwood's "The New Harmony Communities" appeared in 1902, it referred to the Old Fauntleroy Home as the home of Thomas Say. According to Miss Fauntleroy, Mr. and Mrs. Say lived in No. 53 soon if not directly after they were married and Cornelius Tiebout and his daughter Caroline lived with them. Later, they moved to No. 5 (the old home of George Rapp, built in 1815) that was burned in 1843.

From this it would appear that the following changes should be made in the illustrations in "Thomas Say, Early American Naturalist." The illustration facing page 40 which Miss Fauntleroy called the Schnee house and which was copied from Webster should be replaced by the illustration of the Old Fauntleroy Home, that accompanies these notes. The photograph facing page 146 of Rappite House No. 5 should be captioned as follows, "Rappite House No. 5, the old home of George Rapp and later of William Maclure. This was partly destroyed by fire in 1843 and then rebuilt with architectural changes. Thomas

Say died in this house." The photograph facing page 158 should be captioned, "The Maclure residence in New Harmony after being rebuilt following a fire in 1843."

A printed leaf sent to me by Miss Fauntleroy states that the Old Fauntleroy Home built by the Rappites in 1815 had been the dwelling place of Franz Phfiel, a Rappite and his family. Following them it was the home of Thomas Say and his wife; Cornelius Tiebout, engraver, and his daughter Caroline Tiebout; Oliver Evans, Jr., an inventor and his wife; Louisa Neef, a

The Old Fauntleroy Home in New Harmony, Indiana. Built by the Rappites in 1815. Purchased in 1841 by Robert Henry Fauntleroy and remodeled. Thomas Say and his wife lived in this house.

Pestalozzian teacher; Robert Henry Fauntleroy, an officer of the Southern Coast and Geodetic Survey, and his wife; Jane Dale Owen, daughter of Robert Owen; Constance Owen Fauntleroy, founder of "The Minerva Society"; Prof. Geo. Davidson, a scientist, and his wife; Ellinor Fauntleroy; Dr. David Dale Owen, first U. S. Geologist, and his wife; Caroline Neef, a Pestalozzian teacher; Robert Dale Owen, statesman, author, diplomat, and his wife; Mary Jane Robinson; and Rachel Homer Fauntleroy.

In 1841 Robert Henry Fauntleroy purchased the property and remodeled it. After that it remained in the family and was known as the Old Fauntleroy Home. In 1938 it was owned by the Indiana Federation of Clubs and Miss M. E. Fauntleroy was its hostess.

It is difficult to believe that Col. and Mrs. Richard Owen, both of whom knew Say, could have misinformed Webster when he visited them in 1888. However over a period of 55 or 60 years memories may become dim. It is also not perfectly clear why Miss M. E. Fauntleroy waited seven years or until one year after the death of Mrs. Nora C. Fretageot to advise me of the error, unless it was because there was a long standing feud between these two women over the historical importance of the Old Fauntleroy Home and of Mme. Marie Louise Duclos Fretageot, who joined the New Harmony community and managed William Maclure's affairs there during his absences. Miss Fauntleroy was not an admirer of Mme. Marie Duclos Fretageot and Mrs. Nora C. Fretageot was not impressed by Miss Fauntleroy's claims for the Old Fauntleroy Home.

My failure to correct the mistake, if mistake it is, until 15 years after the receipt of Miss Fauntleroy's letters may be easily explained. The correspondence was put away so carefully that it remained "lost" until recently when it was found.

The Trichodectid of the Hog-nosed Skunk, Conopatus leuconotus Lichtenstein (Mallophaga: Trichodectidae) [1]

By Edwin F. Cook, University of Minnesota

The following new species of *Neotrichodectes* was collected by Dr. James R. Beer of the University of Minnesota Museum of Natural History Expedition to Mexico in December 1951 from a single specimen of *Conopatus leuconotus* Lichtenstein.[2] This specimen was found to be very heavily infested with all

[1] Paper No. 2876, Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

[2] Identified by Dr. James R. Beer, University of Minnesota.

stages of the mallophagan. Fresh material was collected in alcohol at the time of capture of the host, and additional specimens were removed from the skin after it was brought back to the University.

Neotrichodectes spatulatus n. sp.

This species closely resembles *N. chilensis* Werneck and *N. arizonae* Werneck, but the female differs in the structure of the gonopophyses and in the chaetotaxy of the pregenital sclerite, while the male differs in the wider sclerotization of the basal plate.

FEMALE: (Figures 1 and 3D)[3]

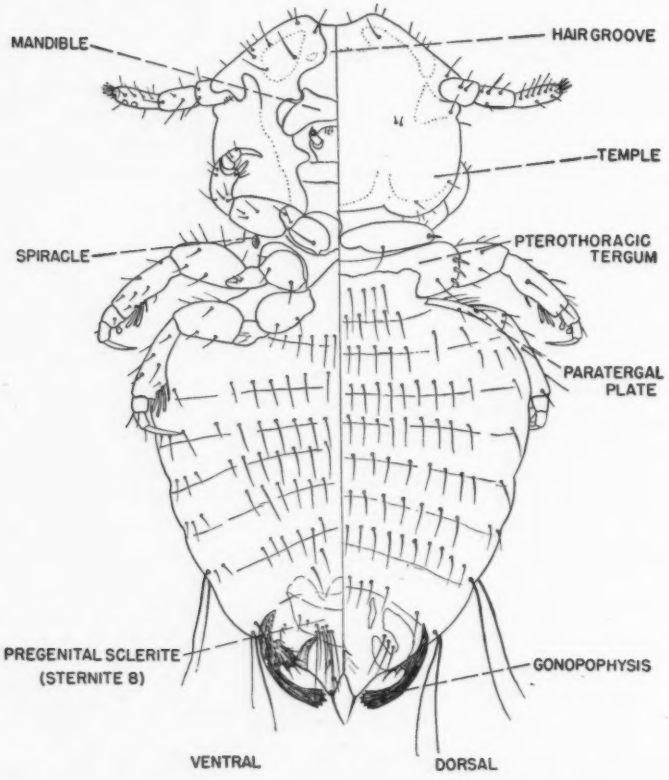
Total length 1.72 mm., width at the widest part of the abdomen .93 mm., rather short and stout. The length of the female paratypes varies from 1.50 to 1.75 mm. with an average length of 1.62 mm. Head wider than long; length .46 mm., width .62 mm., the anterior margin gently rounded with a broad shallow median notch leading into the hair groove; temples not salient and without notably large setae. The rather short antennae are set in small fossae, are three-segmented and beset with setae as in the illustration; segment one is the largest in diameter and segment three the longest. The eyes are small but obvious.

The thorax is short and wide but rather narrower than the head. The prothoracic tergum is divided medially into two lateral tergites each of which bears at its lateral margin a single stout seta and medially, on the posterior margin, a somewhat longer but more delicate seta. Medially, between the two prothoracic tergites and the posterior margin of the head there is a small fusiform sclerite which may be the true tergum. The thoracic spiracles are located immediately ventrad of the lateral margins of the tergites just posterior to the prothoracic legs. The tergum of the pterothorax is deeply emarginate posteriorly and expanded laterally into prominent wing-like lobes. These

[3] The figures were drawn with the air of a microprojector, and the chaetotaxy is as nearly identical with that of the specimen figured as possible.

lobes bear three short, stout, marginal setae and a long, posteriorly directed medial seta.

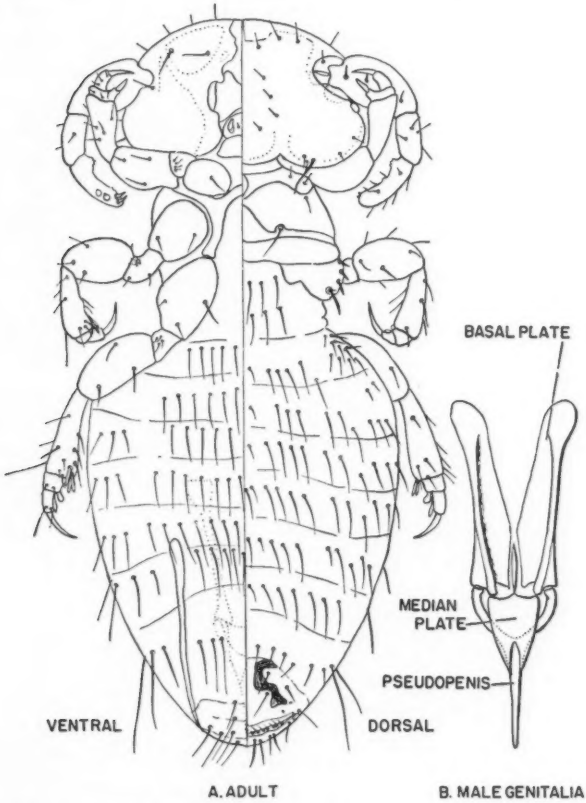
The legs are without noteworthy features.



NEOTRICHODECTES SPATULATUS N.SP. FEMALE FIGURE 1

The abdomen is somewhat pyriform, narrowed posteriorly, nearly as wide as long, almost entirely membranous. Only the paratergal plates of abdominal segment one and parts of the eighth

segment are sclerotized. The spiracles are vestigial, visible only as minute dorsolateral punctures on abdominal segments one to six. This is at variance with the statement by Werneck



NEOTRICHODECTES SPATULATUS N.SP. MALE FIGURE 2

(1948) that the abdominal spiracles are completely lacking in *Neotrichodectes*. The abdomen terminates in a pair of prominent cones, each bearing a stout seta at its apex.

The gonopophyses arise from segment eight (Fig. 3D), each gonopophysis with a large serrate inner lobe, several of the serrations tipped with a small seta; apex of the gonopophysis expanded, spatulate and apically irregularly serrate. The sternite of segment eight is rather lunate and bears a cluster of long setae on each side of the midline; the tergite with a pair of laterally located, "C"-shaped sclerotizations, each surrounding three stout setae.

The female of this species is separable from *N. arizonae* and *N. chilensis* by the spatulate, apically serrate gonopophyses, by the lunate eighth sternite and by the presence of the paired clusters of seven long setae on each side of the midline of sternite eight. Compare with illustrations of Werneck (1948, Fig. 184 to 188).

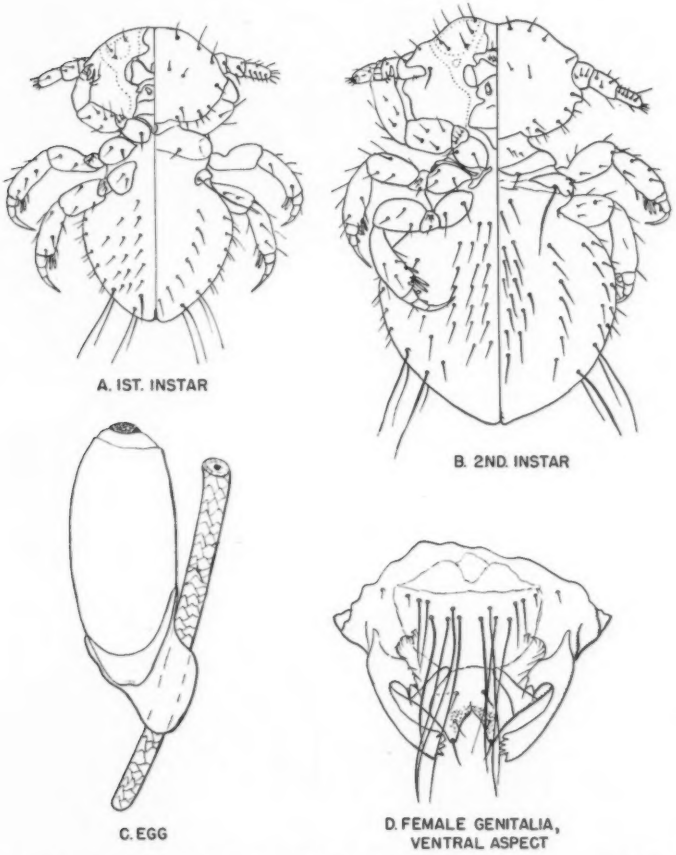
MALE: (Figures 2A and B)

Total length 1.75 mm., width at widest part of the abdomen .71 mm., longer and more slender than the female. The length of the male paratypes varies from 1.56 to 1.75 mm., with an average length of 1.68 mm. The head is wider than long; length .37 mm., width .53 mm.; the anterior margin almost completely rounded with little evidence of any median notch; antennal fossae larger than in the female; temporal lobes smaller but more rounded and prominent than in the female, each lobe with a conspicuous seta postero-dorsally. The antennae are modified for clasping the female; segment one much enlarged and femora-shaped, segment two rather small, segment three with the inner face tuberculate and a pair of short stout apical setae.

The thorax and appendages are as in the female; chaetotaxy similar.

The abdomen is longer and more slender than in the female, largely membranous and with no evidence of paratergal plates. Spiracles as in the female. The subgenital phragma with the lateral margins strongly sclerotized, thus appearing as a pair of parallel sclerotizations on the ventral surface of the abdomen from segment five to the opening of the genital chamber. The posterior margin of the genital opening is sclerotized and beset

with short setae. Dorsally, the apparent eighth segment bears a question-mark-shaped sclerite on either side of the midline.



N. SPATULATUS N. SP. EGG, NYMPHS & FEMALE GENITALIA FIGURE 3

The male genitalia are much as in *N. arizonae* Werneck (1948, Fig. 189). The pseudopenis or fused endomeres are in

the form of a long-stemmed "Y" and the median plate (fused parameres?) is almost identical with that illustrated by Werneck. The greatest difference between males of this species and of *N. arizonae, N. chilensis* and *N. interrupto-fasciatus* lies in the much wider lateral sclerotizations of the basal plate.

TYPE HOST: *Conopatus leuconotus* Lichtenstein, M.M.N.H. No. 3224, collected in tropical evergreen forest at the edge of Rio Cajones (Rio San Marcos), Rancho el Ajengibre, Km. 264, Mexico City-Tuxpan Highway, Puebla, MEXICO, December [14], 1951. Col. Dwain W. Warner.

SPECIMENS EXAMINED: *holotype* female, *allotype* male, 19 female and 8 male paratypes and 24 nymphs representing the three nymphal instars. All specimens are in the collections of the University of Minnesota.

NOTES ON THE IMMATURE STAGES

EGGS: (Figure 3C)

Length .50 to .62 mm.; glued to the hairs near the base, between the shoulders and along the sides of the host just posterior to the forelegs. The surface of the eggs smooth with no cuticular sculpturing that can be detected. Much like the eggs of *Trichodectes canis* (DeGeer) (Crystal, 1949) except for the smaller size.

FIRST INSTAR NYMPH: (Figure 3A)

Length .60 to .71 mm.; head and thorax together as long as the abdomen; setae fewer than adult, only a single longitudinal row on each side dorsally (one seta on each side of the midline per segment), a triple row ventrally and a double row laterally; legs with fewer setae than in adult; pterothorax with a single pair of long setae.

SECOND INSTAR NYMPH: (Figure 3B)

Length .89 to 1.15 mm.; abdomen relatively larger than in the first instar and with more setae on each segment; head and antennae much as in the adult female; no evidence of genitalia.

THIRD INSTAR NYMPH: (not illustrated)

Length 1.32 to 1.41 mm.; head and thorax much as in the adult female but less heavily sclerotized. Seta number intermediate between that of the second instar and the adult female; no evidence of the external genitalia. Crystal (1949) indicates that in *T. canis* (DeGeer) the external genitalia do not appear until the final moult. The number of nymphal instars in that species is identical with the one herein described.

Werneck (1948) indicates that it is difficult to separate the males of *N. interupto-fasciatus* (from *Taxidia taxus*), *N. chilensis* (from *Conopatus chinga, C. humboldti* and *C. chilensis amazonicus*), *N. arizonae* (from *Conopatus mesoleucus*) and *N. mephitidis* (from various species of *Mephitis*). He also indicates that he hesitates in considering the various species of *Neotrichodectes* described from the genus *Conopatus* (including *N. wolffhügeli* Werneck from *Conopatus chinga*) as good distinct species because the differences in the females are very small. However, the differences in the females are distinct and constant even though small, and these differences correlate (except in the case of *N. wolffhügeli*) with differences in hosts. There is little reason then, to doubt that these various species of *Neotrichodectes* are good (again with the exception of *N. wolffhügeli*). It is, furthermore, interesting to note that there is a different species of Trichodectid on each of the two species of *Conopatus* of Central and North America while a third and possibly a fourth species occurs on the several South American species of the genus.

LITERATURE CITED

CRYSTAL, M. M. 1949. A descriptive study of the life history stages of the dog biting louse, *Trichodectes canis* (DeGeer). Bull. Brook. Ent. Soc. 44: 89–97.

WERNECK, F. L. 1948. Os malophagos de mamiferos, Parte I: Amblycera e Ischnocera. Edicaõ da Revista Brasileira de Biologia, Rio de Janeiro. pp. 1 to 243.

A Check List of the Trichoptera (Caddis Flies) of New Hampshire

By Wallace J. Morse and Robert L. Blickle [1, 2]

This report sets forth the results of six years (1946–1951) collecting with light traps. The traps were operated in ten different towns. However, over 75 per cent of the material taken in the traps was from the towns of Durham and Lee, in the southeastern part of the state. The number of specimens taken in the light traps totaled over 15,000, not including many unknown specimens.

The list of Trichoptera, as given, contains published records and collection records by methods other than by light traps. The list is a record of adult specimens.

Much credit must be given to Dr. Lorus J. Milne for the use of his unpublished doctorate thesis in which he compiled all known North American Trichoptera distributional records up until 1936. Further appreciation is expressed to Dr. Cornelius Betten, Dr. Herbert H. Ross, and Dr. Donald G. Denning, for their cooperation and help in identifying and checking many of the light trap specimens.

The following abbreviations are used in connection with literature records:

Nathan Banks, NB; Cornelius Betten, CB; Donald G. Denning, DGD; Lorus J. Milne, LJM; Herbert H. Ross, HHR. Collectors: Robert L. Blickle, RLB; James G. Conklin, JGC; Wallace J. Morse, WJM; Philip R. Lowry, PRL; H. F. Sheffield, HFS; David Laddey, DL; Carl F. French, CFF; light trap, lt.

The dates listed indicate the first and last date on which specimens were taken.

The list of Trichoptera is arranged in the same manner as used by Ross (1944).

Future collecting and the identification of undertermined species should bring the list total to nearly three hundred species.

[1] N. H. Agr. Expr. Sta.
[2] Scientific Contribution No. 147.

Nearly half of the unknowns on hand are in the family Hydroptilidae.

A List of New Hampshire Trichoptera

RHYACOPHILIDAE

Rhyacophila Pictet

acropedes Banks, Mt. Washington (DGD), July 31–Aug. 4; **atrata** Banks, Mt. Washington (DGD), July 31–Aug. 4; **banksi** Ross, Mt. Washington (DGD), Warren, Woodstock (DGD, HHR), June 21–July 4; **carolina** Banks, Mt. Washington (DGD), Durham, Lee (lt), July 4–30; **carpenteri** Milne, Mt. Washington (LJM, DGD), Franconia, Gorham, Randolph (LJM), June 30–Aug. 4; **fuscula** (Walker), White Mountains (LJM), Durham, Lee (lt), June 15–Sept. 14; **glaberrima** Ulmer, Mt. Washington (LJM), July 31–Aug. 15; **minora** Banks, White Mountains (LJM, CB), Colebrook (WJM, RLB), June 19; **torva** Hagen, White Mountains (LJM, RLB), June 4–July.

Glossosoma Curtis

***americanum** Banks, Franconia (LJM, CB); **nigrior** Banks, Lee, Plymouth (lt), May 8–July 26.

Agapetus Curtis

iridis Ross, Lee, Plymouth (lt), June 1–July 3; **pinatus** Ross, Hopkinton, Lee (lt), June 27–July 10; **rossi** Denning, Durham, Lee, Plymouth, Rumney (lt), June 5–Aug. 30.

Protoptila Banks

maculata (Hagen), Newport (lt), July 8; **palina** Ross, Hopkinton, Durham, Lee, Plymouth (lt), June 9–July 14.

PHILOPOTAMIDAE

Dolophilodes Ulmer

distinctus (Walker), Mt. Washington (LJM), Durham, Lee, N. Conway, Plymouth (lt), April 25–Aug. 25.

Wormaldia McLachlan

moesta (Banks), Bow (lt), Colebrook (WJM, RLB), Durham, Lee (lt), June 19–July 6; **shawnee** Ross, Lee (lt), June 18–30.

* Unidentified female, may be the same as *G. nigrior*.

Chimarra Stephens

aterrima Hagen, Berlin, Franconia (LJM), Durham (WJM; lt), Freedom, Hopkinton, Lee, N. Conway, Rumney (lt), May 18–Aug. 30; **obscura** (Walker), Milford (LJM), Durham (WJM, RLB; lt), Hopkinton, Lee (lt), May 29–Sept. 3; **socia** Hagen, Bow, Durham, Lee (lt), June 9–July 28.

PSYCHOMYIIDAE

Phylocentropus Banks

carolinus Carpenter, Durham, Lee (lt), June 22–July 30; **lucidus** (Hagen), N. Conway, Squam Lake (LJM), Durham, Hopkinton, Lee, Newport, Plymouth, Rumney (lt), May 8–Aug. 30; **placidus** (Banks), Bow, Durham, Freedom, Hopkinton, Lee (lt), Northwood (JGC), Plymouth, Rumney (lt), May 8–Sept. 7.

Neureclipsis McLachlin

bimaculatus (Linnaeus), Durham, Freedom, Plymouth (lt), June 16–July 26; **crepuscularis** (Walker), Durham, Lee (lt), June 18–Aug. 30.

Polycentropus Curtis

albipunctus (Banks), Durham (WJM; lt), Lee (RLB, lt), June 15–Sept. 28; **aureolus** (Banks), Hampton (CB, HHR), Bow, Durham, Hopkinton (lt), Lee (RLB; lt), Plymouth (lt), June 10–Aug. 6; **cinereus** Hagen, Dublin, Gorham, Milford, Pinkham Notch, Squam Lake (LJM), Bow (lt), Durham (WJM; lt), Freedom, Hopkinton (lt), Lee (RLB; lt), Plymouth (lt), June 2–Sept. 10; **confusus** Hagen, Franconia, Pinkham Notch (LJM), Durham, Hopkinton, Lee (lt), June 14–Aug. 30; **crassicornis** Walker, Hampton, Squam Lake (LJM), Bow, Durham, Freedom, Hopkinton (lt), Lee (RLB; lt), Plymouth (lt), Rye (RLB), June 10–Aug. 24; **flavus** (Banks), Bow, Durham, Freedom, Hopkinton, Lee, Plymouth, Rumney (lt), June 1–Aug. 30; **grellus** (Milne), Durham, Lee (lt), July 10–19; **interruptus** (Banks), Hampton, Squam Lake (LJM), Durham, Lee, Plymouth, Rumney (lt), Rye (RLB), June 9–Aug. 30; **maculatus** Banks, Mt. Washington (HHR), Lee, Plymouth (lt), July 15–Aug. 6; **nascotius** Ross, Durham, Lee (lt), June 18–Aug. 31; **pentus** Ross, Mt. Washington (HHR), June 22; **pixi** Ross, N. Woodstock (HHR), June; **remotus** Banks, N. Woodstock (HHR), Durham (RLB; lt), Hopkinton, Lee, Plymouth, Rumney (lt), Rye (RLB), May 5–Sept. 7; **smithae** Denning, Mt. Washington (DGD), July 17.

Nyctiophylax Brauer

uncus Ross, Woodstock (HHR), Durham, Freedom, Lee, Plymouth (lt), June 16–July 25; **vestitus** (Hagen), Dublin, Milford, Squam Lake (LJM), Barrington (WJM), Bow (lt), Durham (WJM; lt), Freedom, Hopkinton, Lee, Newport (lt), Northwood (JGC), Plymouth, Rumney (lt), June 2–Sept. 7.

Cernotina Ross

pallida (Banks), Freedom, Hopkinton (lt), July 6–10; **spicata** Ross, Durham (WJM; lt), Lee (lt), June 5–Aug. 27.

Lype McLachlin

diversa (Banks), N. Woodstock (HHR), Durham, Freedom, Lee, Plymouth, Rumney (lt), May 8–Aug. 30.

Psychomyia Pictet

flavida Hagen, N. Woodstock (HHR), Durham, Lee, N. Conway, Plymouth, Rumney (lt), June 9–Aug. 30.

HYDROPSYCHIDAE

Parapsyche Betten

apicalis (Banks), Franconia (CB), Mt. Washington, Randolph (LJM), June 22–30.

Arctopsyche McLachlen

ladogensis (Kolenati), White Mountains (LJM), June.

Diplectrona Westwood

doringa Milne, White Mountains (LJM), July 3; **modesta** Banks, Etna (HHR), Lee (lt), July 8.

Hydropsyche Pictet

alternans (Walker), Franconia, Pinkham Notch (LJM), July 26; **betteni** Ross, Bow, Durham, Lee, Plymouth (lt), May 8–Sept. 10; **bifida** Banks, Durham, Hopkinton, Lee (lt), June 5–Sept. 6; **dicantha** Ross, Hopkinton (lt), July 10–30; **morosa** Hagen, Durham (lt), Aug. 18–25; **slossonae** Banks, Franconia (LJM, DGD), Durham (lt), July 28; **sparna** Ross, Durham (RLB; lt), Hopkinton (lt), Lee (RLB; lt), N. Conway, Plymouth (lt), May 8–Sept. 1; **vexa** Ross, Plymouth (lt), June 9; **walkeri** Betten & Mosley, Durham, Plymouth (lt), June 24.

Cheumatopsyche Wallengren

analis (Banks), Durham (HHR; lt), Freedom (lt), Hanover (WJM), Hopkinton (lt), Lee (RLB), Plymouth, Rumney (lt),

June 9–Sept. 7; **campyla** Ross, Bow, Durham, Hopkinton, Lee, Newport, Plymouth (lt), Strafford (WJM), June 5–Aug. 28; **minuscula** (Banks), Durham (lt), Lee (RLB; lt), Newport (lt), June 22–Aug. 13; **oxa** Ross, Colebrook (WJM, RLB), June 19; **pasella** Ross, Lee, Plymouth (lt), June 9–Aug. 7.

Macronemum Burmeister

zebratum (Hagen), Durham (WJM; lt), Lee, Plymouth (lt), June 15–Aug. 31.

HYDROPTILIDAE

Agraylea Curtis

multipunctata Curtis, Durham, Hopkinton, Lee (lt), May 8–Aug. 26.

Ithytrichia Eaton

clavata Morton, Durham, Hopkinton, Lee (lt), June 5–Aug. 8.

Stactobiella Martynov

delira (Ross), Colebrook (WJM, RLB), Durham, Lancaster, Lee, Plymouth (lt), May 31–Aug. 13; **palmata** (Ross), Bow, Durham, Lee, Plymouth (lt), June 1–July 4.

Ochrotrichia Mosley

shawnee (Ross), Plymouth (lt), June 9–10.

Oxyethira Eaton

forcipata Mosely, Bow, Durham, Lancaster, Lee, Plymouth (lt), May 8–Sept. 10; **grisea** Betten, Durham, Hopkinton, Lee, Plymouth (lt), May 8–Aug. 28; **pallida** (Banks), Durham, Lee, Plymouth (lt), June 18–Sept. 10; **serrata** Ross, Bow, Durham, Hopkinton, Lee, Plymouth (lt), May 8–Sept. 23; **zeronia** Ross, Bow, Lee (lt), July 4–Aug. 5.

Orthotrichia Eaton

americana Banks, Durham, Hopkinton, Lee, Plymouth (lt), June 16–Aug. 13; **cristata** Morton, Bow, Durham, Hopkinton, Lee, Plymouth, Rumney (lt), June 5–Aug. 28.

Hydroptila Dalman

amoena Ross, Lee (lt), Aug. 25; **callia** Denning, Durham, Hopkinton, Lee (lt), May 31–July 28; **gunda** Milne, Durham, Lee (lt), June 18–Aug. 4; **hamata** Morton, Bow, Durham, Lee, Newport (lt), June 18–Aug. 28.

Neotrichia Morton

vibrans Ross, Lee, Plymouth, Rumney (lt), June 24–Aug. 24.

PHRYGANEIDAE

Agrypnia Curtis

improba var. **sackeni** Banks, Franconia, White Mountains (NB); **vestita** (Walker), Hampton (LJM), Rye (RLB), June 16.

Oligostomis Kolenati

ocelligera (Walker), Dublin, Franconia (LJM), NH (Hagen's type) (CB), Durham (RLB, HFS, DL), Lee (RLB), May 3–21.

Eubasilissa Martynov

paradalis (Walker), Franconia, White Mountains (LJM, CB).

(To be continued)

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

Some Notes on the Role of Epidermis in Insects and Ticks

Within recent years a number of isolated observations have indicated a degree of importance to the epidermis not previously suspected. The first surprising development came when LEES [1] was reporting on the hygroscopic uptake of water in ticks, that is, on the absorption of water vapor from moist air to increase the amount of fluid water in the animal (a phenomenon also known in certain grasshoppers, fleas, beetles, bedbugs and moth pupae). He found that injuries to the cuticle extensive enough to require repair were accompanied by cessation of the uptake of atmospheric water. Perhaps this means that the power to absorb and concentrate water vapor is a property of the living epidermis, and that when the epidermis has to stop to repair damage

[1] LEES, A. D. Disc. Faraday Soc., no. 3, pp. 187–192. 1948.

it has to cease, temporarily, the active absorption of water. Presumably the water absorption requires expenditure of energy (it does not occur in killed specimens), and the epidermis does not expend energy for both repair and absorption simultaneously. Alternatively, more than the epidermis is involved, and an injury needing repair affects the whole organism or at least the epidermis plus endocrine system as may be indicated by the next set of data.

In pupae of the giant silkworm moths (cecropia, promethia, etc.), WILLIAMS [2, 3] has shown that an abdominal shell of integument from which all internal organs have been removed can complete development to a normal-appearing adult abdomen provided that the appropriate endocrine glands are implanted into it. In other words, the pupal epidermis plus its associated somatic musculature is fully capable of forming the adult skin and scales except for needing whatever is supplied by the hormones. Perhaps the hormones supply only a stimulus to develop, perhaps they supply some necessary chemicals for the development (Williams has shown that the hormones influence re-establishment of the cytochrome enzyme system but whether or not these particular enzymes play an important direct role in differentiation of the integument is unknown). Whatever the endocrines supply, this plus the epidermis is adequate for adult development—innervation and the presence of more muscles and other internal organs are needed to make a complete moth but not to make a complete moth's skin. The integument is thus shown to be an amazingly competent and independent organ system.

Surgical operations such as are needed for obtaining the preceding data automatically involve injury comparable to the injury referred to in the first paragraph. Perhaps it is not surprising, then, that differentiation of an isolated abdominal integument does not proceed until after healing of the wounds.[3] In other words, healing comes first whenever the injury is extensive and takes precedence over phenomena such as water absorption and differentiation (metamorphosis).

[2] WILLIAMS, C. M. Biol. Bull., 93: 89–98. 1947.
[3] WILLIAMS, C. M. Growth Symp., 12: 61–74. 1948.

More recently, SUSSMAN [4] found in the course of injection experiments that perforation of the integument of a cecropia pupa by a hypodermic needle caused an immediate jump in oxygen consumption (30%) and that the increased rate was maintained for several days. It is not known whether this great increase in respiration is due to the whole animal or to the integument alone. Be that as it may, obviously a small injury to the integument can call forth a large and lasting response expressed as an altered metabolic rate. However, this particular response does not seem to be a general phenomenon because no such increased oxygen consumption was found in fly larvae (*Phormia*) injected by BUCK, KEISTER, and POSNER [5] or in beemoth pupae (*Galleria*) injected by Mr. JOHN HERON in this laboratory.[6]

Older and therefore more generally known is the fact that specific pattern determination is at least largely under control of the individual epidermal cells. It was shown many years ago that the entire cuticle is capable of being sclerotized, and, accordingly, that the sclerotization pattern must be somehow controlled by the immediately underlying epidermal cells.[7] Recently it has been shown that this control is accomplished by the local passing out into the cuticle of substrate for sclerotization only in those areas that are to be sclerotized.[8, 9] In wound healing the nature of the regenerating integument has also been shown to be controlled by the nature of the cells that are doing the healing.[10] In effect, these data simply push the basic developmental problem back one step; namely, to the question of why certain epidermal cells become determined to do one thing in development while nearby cells become determined to do something else. On this problem little progress has been made but the

[4] SUSSMAN, A. S. Biol. Bull., 102: 39–47. 1952.

[5] BUCK, J. B., M. L. KEISTER, and I. POSNER. Ann. Entomol. Soc. Amer., 45: 369–384. 1952.

[6] HERON, J. Unpublished thesis, Univ. Minnesota. 1949.

[7] RICHARDS, A. G. The Integument of Arthropods. Univ. Minnesota Press. 1951.

[8] RICHARDS, A. G. Biol. Bull., 103: 201–225. 1952.

[9] DENNELL, R. and MALEK. Nature (in press).

[10] WIGGLESWORTH, V. B. J. Exp. Biol., 14: 364–381. 1937.

importance of the individual epidermal cells in the process seems apparent.

No novelty is involved in saying that the integument is an important organ system of insects and other arthropods. Obviously it conditions most exchanges with the environment (notably water loss), and mosaics and gynandromorphs long since demonstrated that there must be a large degree of autonomy in its development. Novel are the facts that the epidermis can condition such seemingly over-all processes as oxygen consumption and the hygroscopic uptake of water, that wound healing takes precedence over the uptake of water and over differentiation, and that the individual cells of the general epidermis have so much individuality.

A. GLENN RICHARDS.

Current Entomological Literature

Compiled by VENIA T. PHILLIPS, Librarian

Academy of Natural Sciences of Philadelphia

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania pertaining to entomology, including all arthropods except Crustacea. Coverage will be world-wide as regards major contributions to systematics as well as for all papers on morphology, physiology, embryology, etc. In addition, for species from the Americas and the Pacific (Nearctic, Neotropical and Polynesian regions) all minor contributions to taxonomy, distribution, etc., will also be recorded.

This list gives references of the year 1952 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Aellen, V.—La faune de la grotte de Moron (Jura Suisse). [Bull. Soc. Neuchatel. Sci. Nat.] 75: 139–51, ill. **Barnes, W. B.**—Zoogeographic regions of Indiana. [12] 48: 694–99, map. **Bishopp, F. C., H. H. Stage and H. Sollers.**—World wide mosquito work in 1951. [Proc. N. Y. Mosq. Ext. Assn.] 1952: 8–34. **Bogush, P. P.**—Primenenie svetovykh samolovob kak metod izucheniia dina-

miki chislennosti nasekomykh. [Ent. Obozrenie] 31: 609–28, ill., 1951. **Bruns, H.**—Die rote waldameise im einsatz gegen forstschädlinge (Formicidae). [Kosmos] 48: 563–67, ill. Warn- und tarntrachten im tierreich. 76 pp., ill., Kosmos, Stuttgart. **Chisholm, A. H.**—Strange relations of birds and insects. [Nature Mag.] 45: 526–28, 550, ill. **Conci, C.**—Le Arene Candide N. 34 Li. Morfologia e fauna. (Cave fauna.) [Doriana] 1, no. 24, 12 pp. **Dehalu, M. and J. Leclercq.**—Application des series logarithmiques de Fisher-Williams à la classification des hymenoptères crabroniens. [Ann. Soc. Roy. Zool. Belg.] 82: 67–82, 1951. **D'Erasmo, G.**—Le date di pubblicazione della "Fauna del Regno di Napoli" di Oronzio Gabriele Costa e di Achille Costa. [Rend. Accad. Sci. Fisiche e Mat.] ser. 4, v. 16: 14–36, 1949. **Fenton, F. A. and R. G. Dahms.**—Attempts at controlling the greenbug by the importation and release of lady beetles in Oklahoma. [Proc. Okla. Acad. Sci.] 32: 49–51. **Freeman, T. N.**—Some problems of insect biology in the Canadian Arctic. [Arctic] 5: 175–77. **Howell, D. E.**—Museum insect pest control with newer insecticides. [Proc. Okla. Acad. Sci.] 32: 31–3, 1951. **Kullenberg, B.**—Recherches sur la biologie florale des Ophrys. [Bull. Soc. d'Hist. Nat. l'Afrique du Nord] 43: 53–63. (Orchid that mimics bee.) **Nissen, C.**—Dr. Friedrich Ohaus (1864–1946); a bibliography of his entomological papers. [J. Soc. Bibl. Nat. Hist.] 2: 400–6. **Philip, C. B.**—Notes on tabanid flies and other victims caught by the carnivorous plant, Sarracenia flava. [64] 35: 151–55. **Rothschild, M. and T. Clay.**—Fleas, flukes and cuckoos. Philosophical Library, N. Y. $8.75. xiv, 304 pp., ill. (Rev. by G. S. Tullock in [36] 47: 137.) **Smith, H. M.**—Definition of species. [Turtox News] 30: 110–12.

BIOGRAPHIES, OBITUARIES—Kinnmark, Folke, 1899–1951.—(Obit. with port.), by C. H. Lindroth in [108] 17: 105–6. **Krogerus, Rolf.**—(Biogr. with port.), by C. H. Lindroth in [108] 17: 98–99. **Nordström, Frithiof.**—(Biogr. and port.), by K. Ander in [108] 17: 97. **Sjöstedt, Yngve,** 1866–1948.—(Obit. with port.), by R. Malaise in [108] 17: 103–4. **Tragardh, Ivar, 1878–1951.**—(Obit. with port.), by O. Ahlberg in [108] 17: 100–2. **Zakhvitkin, Alekseĭ Alekseevich,** 1906–1951.—(Obit. with bibl. and port.), by E. N. Pavlovskii in [Ent. Obozrenie] 31: 629–33, 1951.

ANATOMY, PHYSIOLOGY, MEDICAL—Baker, W. K. and C. W. Edington.—The induction of translocations

and recessive lethals in Drosophila under various oxygen concentrations. [Genetics] 37: 665–77. **Berger, L. A.**—Remarques sur le dimorphisme saisonnier des lepidopteres du Congo Belge. [Ann. Soc. Roy. Zool. Belg.] 82: 19–22, 1951. **Chumakova-Safronovich, B. M.**—Vliianie pitaniia na sozrevanie nasekomykh. [Ent. Obozrenie] 31: 336–48, ill., 1951. **Danielevskiĭ, A. S.**—Ob usloviiakh mnogoletneĭ diapauzy u cheshuekrylykh (Coccidae). [Ent. Obozrenie] 31: 386–92, 1951. **DeFalco, R. V.**—Serological identification of mosquito blood meals. [Proc. N. J. Mosq. Ext. Assn.] 1952: 168–69. **Defretin, R.**—Présence possible de polysaccharides au niveau des dictyosomes dans la glande salivaire de la larve de chironome. [Compt. rend. Soc. Biol. Paris] 146: 1118–19. **Defretin, R.**—Sur la sécrétion salivaire de la larve de chironome et quelques réactions combinées des polysaccharides. Présence de phosphatase alcaline. [Compt. rend. Soc. Biol. Paris] 146: 1115–17. **Dobzhansky, T., B. and N. Spassky.**—A comparative study of mutation rates in two ecologically diverse species of Drosophila. [Genetics] 37: 650–64. **Edel'man, N. M.**—Vliianie nizkikh temperatur na zhukov iz semeĭstva chernotelok (Tenebrionidae). [Ent. Obozrenie] 31: 374–85, 1951. **Gaul, A. T.**—Additions to vespine biology X: Foraging and chemotaxis. [36] 47: 138–40. **Kozhanchikov, I. V.**—Pishchevaia spetsializatsiia i znachenie ee v zhizni nasekomykh. [Ent. Obozrenie] 31: 323–35, 1951. **Lucker, J. I. and M. P. Sause.**—The occurrence of demodectic mites, Demodex folliculorum, in the internal tissues and organs of the dog. [N. Amer. Veterinarian] 33: 787–96, ill. **McClelland, R. B. and F. E. McClelland, Jr.**—Pneumonyssus caninum in a dog in Western New York (Acarina). [Cornell Vet.] 42: 337–38, ill. **Mercer, E. H. and M. F. Day.**—The fine structure of the peritrophic membranes of certain insects. [30] 103: 384–94, ill. **Peacock, A. D.**—Some problems of parthenogenesis. [Advancement of Sci.] 9: 134–48. **Power, M. E.**—A quantitative study of the growth of the central nervous system of a holometabolous insect, Drosophila melanogaster. [79] 91: 389–411. **Proctor, N. K.**—The effects of calcium on isolated arthropod muscles. [30] 103: 421–32. **Reeves, W. C. and W. McD. Hammon.**—California encephalitis virus, a newly described agent. III. Mosquito infection and transmission. [J. Immunology] 69: 511–14. **Rizki, M. T. M.**—Ontogenetic distribution of genetic lethality in Drosophila. [78] 121: 327–50. **Shapiro, I. D.**—Pol' pitaiushchikh rasteniĭ v biologii krestotsvetnykh klopov

roda Eurydema Lap. (Pentatomidae). [Ent. Obozrenie] 31: 361–73, ill, 1951. **Shteinberg, D. M.**—Morfogeneticheskie osnovy raschlenennosti konechnosteĭ nasekomykh. [Ent. Obozrenie] 31: 450–62, ill., 1951. **Tamino, G.**—Osservazioni sulle caratteristiche aerodinamiche dei ditteri e sul volo degli insetti. [Arch. Zool. Ital.] 36: 217–51, ill., 1951. **Tropin, I. V.**—Kormovye rasteniia i morfologicheskaia kharakteristika sosnovogo klopa Aradus cinnamomeus Panz. [Ent. Obozrenie] 31: 349–60, ill., 1951. **Zumpt, F.**—Milben in der haut des menschen (Acarina). [Mikrokosmos] 42: 35–8, ill.

ARACHNIDA AND MYRIOPODA—Alfeev, N. I.—Ob izmeniaemosti metamorfoza u iksodobykh kleshcheĭ (Acarina). [Ent. Obozrenie] 31: 398–403, 1951. **Braun, R.**—"Maserung" von wänden durch spinnen. [Natur u. Volk] 82: 230–3, ill. **Conci, C.**—(See General.) **Crowell, R. M.**—New records of rheophilic water-mites from northwestern North Carolina (Acarina). [Jr. Elisha Mitchell Sci. Soc.] 68: 191–94, ill. **Haarløv, N.**—Systematics and ecology of the genus: Tectocepheus Berlese 1896 (Acarina). [Ent. Meddel.] 26: 424–37, ill. **Hammer, M.**—A new oribatid (Acarina) from Rocky Mountains. [Ent. Meddel.] 26: 380–83, ill. **Lipovsky, L. J.**—A new genus and species of chigger mite (Acarina, Trombiculidae). [82] 25: 132–37, ill. **Lucker and Sause.**—(See Anatomy.) **Meyer, J.**—Édification de galles multiples par une même fondatrice et peuplement des galles d'Eriophyes macrorhynchus Nal. sur Acer Pseudoplatanus L. [2] 235: 1428–40. **Mihelčič, F.**—Beitrag zur systematik der tardigraden. [Arch. Zool. Ital.] 36: 57–103, ill., 1951 (*k). **Roewer, C. F.**—Neotropische Arachnida Arthrogastra, zumeist aus Peru. [Senckenbergiana] 33: 37–58, ill. **Shustrov, A. K.**—O reaktsii kleshcheĭ Ornithodorus lahorensis Neum. i Argas persicus F.-W. na nekotorye faktory vneshneĭ credy (Acarina). [Ent. Obozrenie] 31: 393–97, 1951. **Sorokin, S. V.**—Pochva poleĭ kak biotop khlebnykh kleshcheĭ (Acarina, Tyroglyphoidea). [Ent. Obozrenie] 31: 411–15, 1951. **Toledo Piza, Jr., S. de.**—Primeiras observações sôbre os crommôsomios do Tityus metuendus Pocock (Scorp., Buth.). [Scientia Genetica, Torino] 4: 162–67 (Engl. summary). **Tuzet, O., J.-F. Manier and M. Vogeli-Zuber.**—Sur quelques parasites intestinaux de Mardonium piceus Attems 1952, Myriapode-Diplopode de Daloa (Côte d'Ivoire). [Bull. Inst. Franc. d'Afr. Noire] 14: 1143–51, ill. **Zumpt, F.**—(See Anatomy.)

SMALLER ORDERS—Levanidova, I. M.—Lichinki Calamoceratidae (Trichoptera) dal'nego vostoka SSSR. [Ent. Obozrenie] 31: 529–37, ill., 1951. **Ratcliffe, F. N., F. J. Gay and T. Greaves.**—Australian termites; the biology, recognition, and economic importance of the common species. 124 pp. Melbourne: Commonwealth Sci. and Ind. Research Organ. **Santis, L. de.**—Tres tisanópteros nuevos de la República Argentina. [Notas Museo La Plata] 15: sect. zool. no. 133: 59–70, ill., 1950. **Schmidt, E.**—Fang und aufzucht der larve von Boyeria irene (Fonsc.) (Odon., Aeschnidae). [108] 17: 187–92, ill. **Tapia, E. A.**—Dos especies de tisanopteros Argentinos nuevos para la ciencia. [132] 154: 107–10, ill.

ORTHOPTERA—Beaudry, J. R.—Additions à la faune orthoptérologique de la province de Québec ou du Canada. [Annales de L'ACFAS] 15: 100–2. **Colombo, G.**—Brachitterismo in Anacridium aegyptium. [Arch. Zool. Ital.] 36: 355–62, ill., 1951. Ulteriori osservazioni sulla biologia e sulla genetica dell "Anacridium aegyptium" L. [Atti Accad. Naz. Lincei] ser. 8, 12: 203–7. **Griffiths, J. T.**—Some biological notes on katydids in Florida citrus groves. [64] 35: 134–38, ill. **Pasquier, R., X. Colonna-Césari and J. Bonfils.**—Sur la détermination des régions grégarigènes du criquet marocain Dociostaurus maroccanus Thünbg., en Corse. [2] 235: 1157–59. **Rehn, J. A. G.**—The grasshoppers and locusts (Acridoidea) of Australia. Vol. I, Tetrigidae and Eumastacidae. 326 pp., 21 pls. Melbourne: Commonw. Sci. & Ind. Res. Organization. **Roth, L. M.**—The tergal gland of the male cockroach, Supella supellectilium. [79] 91: 469–74, ill. **Singh, B.**—Observation on the biology of the cricket, Gymnogryllus humeralis Walker (Gryllidae) in the Dehra Dun insectary. [J. Zool. Soc. India] 4: 47–61, ill. **Strohecker, H. F.**—Descriptions of new species and notes on North American Orthoptera. [12] 48: 683–88, ill. **Toledo Piza, Jr., S. de.**—Número e comportamento dos cromôssomios em alguns ortópteros do Brasil. [Scientia Genetica, Torino] 4: 191–98 (Engl. summary).

HEMIPTERA—Boratynski, K. L.—Matsucoccus pini (Green, 1925) (Coccoidea: Margarodidae): Bionomics and external anatomy with reference to the variability of some taxonomic characters. [126] 103: 285–326, ill. (k). **Bozhko, M. P.**—K sravnitel'nomu izucheniiu tleĭ (Aphidodea) opushek listvennykh lesov polezashchitnykh polos. [Ent. Obozrenie] 31: 404–10, 1951. **Danilevskii, A. S.**—(See Anatomy.) **Drake, C. J. and H. C. Chapman.**—A new spe-

cies of Micracanthia from Florida (Saldidae). [64] 35: 147–50. **Drake, C. J. and G. B. Viado.**—Saldoidea of the Philippines (Leptopodidae and Saldidae). [Philippine J. Sci.] 80: 339–42. **Ellis, L. L.**—The aquatic Hemiptera of southeastern Louisiana (exclusive of the Corixidae). [12] 48: 302–29, map (k). **Knowlton, G. F.**—Bedbugs in swallow nests. [36] 47: 122. **Porter, T. W.**—A new species of Hebridae from the Southwest. [82] 25: 147–49, ill. **Roonwal, M. L.**—The natural establishment and dispersal of an imported insect in India.—The Lantana bug, Teleonemia scrupulose Stal (= lantanae Distant; Tingidae), with a description of its egg, nymphs and adult. [J. Zool. Soc. India] 4: 1–16, ill. **Ruppel, R. F. and D. M. DeLong.**—New species of Idona from Mexico (Cicadell.). [Lloydia] 15: 188–92. **Shapiro, I. D.**—(See Anatomy.) **Tropin, I. V.**—(See Anatomy.) **Wittlake, E. B. and R. H. Beamer.**—A new Hebecephalus (Cicadellidae). [82] 25: 154–56, ill.

LEPIDOPTERA—Berger, L. A.—(See Anatomy.) **Franclemont, J. G.**—Four undescribed moths from western North America, with notes on closely related species (Phalaenidae Olim. Noctuidae). [36] 47: 123–37, ill. **Franz, E.**—Typen und typoide des Natur-Museums Senckenberg, 5: Papilionidae. [Senckenbergiana] 33: 23–36. **Hackray, J.**—Les anomalies des élevages (Notodontidae). [84] 52: 57–8. **Harz, K.**—Wanderschmetterlinge und ihre erforschung. [Natur u. Volk] 82: 236–37. **Janmoulle, E.**—Note sur les moeurs des lépidoptères (Pieridae). [84] 52: 57. **McElvare, R. R.**—Schinia saturata Grote. [36] 47: 140. **Nielsen, A. and E. T.**—Migrations of the pieride butterfly Ascia monuste L. in Florida. [Ent. Meddel.] 26: 386–91, ill. **Overlaet, F. G.**—La "Curiosité" chez les papillons (Satyridae). [84] 52: 55–6. **Pierce, F. N.**—The female genitalia of the Noctuidae. 2d ed. 1952. E. W. Classey, 91 Bedford Lane, Feltham, England. (Rev. by L. A. Berger in [84] 52: 60.) **Riabox, M. A.**—Osnovyne morfologicheskie osobennosti zemlianykh podgryzaiushchikh sovok (Agrotidae). [Ent. Obozrenie] 31: 474–84, ill., 1951. **Shvanvich, B. N.**—Opyty nad lokalizatsieĭ risunka kryla u cheshuekrylykh. [Ent. Obozrenie] 31: 485–94, ill., 1951. **Vinogradova, V. N.**—Osobennosti zhilkovaniia zadnego kryla v semeĭstve Pyralidae. [Ent. Obozrenie] 31: 495–99, ill., 1951.

DIPTERA—Alexander, C. P.—New or insufficiently-known crane-flies from Chile (Tipulidae). [Agricultura tecnica, Santiago] 11: 99–118, ill. **Baker and Edington.**—

(See Anatomy.) **Bishopp, et al.**—(See General.) **Blickle, R. L.**—Notes on the mosquitoes (Culicinae) of New Hampshire. [Proc. N. J. Mosq. Ext. Assn.] 1952: 198–202. **Carpenter, S. J. and E. L. Peyton.**—Mosquito studies in the Panama Canal Zone during 1949 and 1950 (Culicidae). [12] 48: 673–82. **DeFalco, R. J.**—(See General.) **Defretin, R.**—(See Anatomy.) **Dobzhansky, Spassky and Spassky.**—(See Anatomy.) **Frick, K. E.**—The status of Agromyza illinoensis Malloch, 1934, and its correct generic position (Agromyzidae). [82] 25: 150–54, ill. **Grunin, K. I.**—O proiskhozhdenii roda Rhinoestrus Br. (Oestridae). [Ent. Obozrenie] 31: 467–73, ill., 1951 (*). Stroenie perednikh dykhalets lickinok ovodov. (Oestridae, Hypodermatidae, Gastrophilidae). [Ent. Obozrenie] 31: 463–66, ill., 1951. **Hagmann, L. E.**—Mansonia perturbans—recent studies in New Jersey. [Proc. N. J. Mosq. Ext. Assn.] 1952: 60–5, ill. **Hansens, E. J.**—Some observations on the abundance of salt marsh greenheads. [Proc. N. J. Mosq. Ext. Assn.] 1952: 93–8. **Huckett, H. C.**—Males of the genus Hylemya sens. Lat. from North America, having dorsal bristles on mid metatarsus, with descriptions of new species (Muscidae). [36] 47: 113–22 (k). **James, M. T.**—The genera Epideisticus, Afrodontomyia, and Cyrtopus (Stratiomyidae). [82] 25: 125–29 (*k). **Pfadt, R. E.**—Seasonal development of cattle grubs in Wyoming. [82] 25: 137–43. **Philip, C. B.**—(See General.) **Power, M. E.**—(See Anatomy.) **Smith, M. E.**—Immature stages of the marine fly, Hypocharassus pruinosus Wh., with a review of the biology of immature Dolichopodidae. [12] 48: 421–32. **Tamino, G.**—(See Anatomy.) **Wirth, W. W.**—Notes on marine midges from the eastern United States (Tendipedidae [= Chironomidae]). [Bull. Marine Sci. Gulf & Caribbean] 2: 307–12, ill.

COLEOPTERA—Brüll, H.—Über die bedeutung der mundwerkzeuge des männlichen und des weiblichen hirschkäfers (Lucanidae). [Natur und Volk] 82: 289–94, ill. **Conci, C.**—(See General.) **Dillon, L. S.**—The Meloidae of Texas. [12] 48: 330–420, ill. (*k). **Edel'man, N. M.**—(See Anatomy.) **Edgren, R. A.**—A bifurcated antenna in the soldier beetle, Chauliognathus pennsylvanicus (Cantharidae). [97] 114: 3 pp. **Fenton and Dahms.**—(See General.) **Franciscolo, M.**—Sulla posizione sistematica delle Glipa americane ed africane (Mordellidae). [Doriana] 1, no. 23, 8 pp., ill. **Gressitt, J. L.**—The tortoise beetles of China

(Chrysomelidae: Cassidinae). [Proc. Cal. Acad. Sci.] ser. 4, v. 27: 433–591, ill. (*k). **Jolivet, P.**—Remarques préliminaires sur l'écologie de Timarcha balearica Gory (Chrysomelidae). [136] 88: 138–40. **Mulnard, J.**—La spermatogenese double d'Acanthoscelides obtectus Say (Bruchidae). [Ann. Soc. Roy. Zool. Belg.] 82: 399–445, ill. **Ochs, G.**—Gyrinidae aus El Salvador. [Senckenbergiana] 33: 147–50, ill. (*k). **Robert, F. A.**—Contribution à l'étude du comportement du Neoclytus acuminatus (Fab.) et de son parasite, l'Heliconidea ligator (Say). [Annales de l'ACFAS] 15: 102–5. **Ruschel, G.**—Nuevos Curculionidae de Bolivia y Perú. II. Notas a algunas especies de Brèthes. [Revista Museo La Plata, Argentina] 6: Sect. Zool. no. 38: 69–116, ill., 1950. **Schedl, K. E.**—Fauna Philippinensis, VIII. Contribution to the morphology and taxonomy of the Scolytoides. [Philippine J. Sci.] 80: 363–71, ill. (*k). **Selander, R. B.**—New species of Meloidae from Utah. [82] 25: 130–32, ill. **Steel, W. O.**—A note on the habits of Velleius dilatatus (F.) (Staphylinidae). [60] 88: 278. **Straneo, S. L.**—Nuovi Pterostichini (Carabidae). [Doriana] 1; no. 8: 1–8 (S). **Uhmann, E.**—Austral-Asiatische Hispinae, VIII, Callispini. [Phil. J. Sci.] 80: 343–63, ill. (*k). **Young, F. N.**—A new species of Suphisellus from Florida (Noteridae). [64] 35: 157–58.

HYMENOPTERA—Bruns, H.—(See General.) **Dehalu and Leclercq.**—(See General.) **Gaul, A. T.**—(See Anatomy.) **Kullenberg, B.**—(See General.) **Neubecker, F.**—"Ameisen-Rauchsäulen." [Natur u. Volk] 82: 233–35, ill. **Pardi, L.**—Studio della attività e della divisione di lavoro in una società di Polistes gallicus (L.) dopo la comparsa delle operaie. [Arch. Zool. Ital.] 36: 363–431, ill., 1951. **Pasteels, J.**—Sur l'existence de races geographiques chez Tenthredo arcuata Förster. [Ann. Soc. Roy. Zool. Belgique] 82: 341–52, ill. **Robert, F. A.**—(See Coleoptera). **Rozen, J. G.**—A new species of Nomadopsis (Andrenidae). [82] 25: 144–47, ill. **Rubtsov, I. A.**—Afitis (Aphytis chrysomphali Mercet)—Parazit korichnevoĭ shchitovki; nekotorye osobennosti rasprostraneniia i biologii korichnevoĭ shchitovki. [Ent. Obozrenie] 31: 435–49, ill., 1951. **Vazirani, T. G.**—A new host record for the hymenopterous parasite Melcha ornatipennis Cameron (Ichneumonidae). [J. Zool. Soc. India] 4: 101. **Wheeler, G. C. and J.**—The ant larvae of the subfamily Ponerinae, Pt. II. [12] 48: 604–72, ill. (k).

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

American Sarcophagidae—wanted for identification. H. R. Dodge, P.O. Box 185, Chamblee, Georgia.

German lepidopterist wishes to correspond and receive live material (eggs and pupae) in exchange for dried imagoes. Johannes Reichel, Koenigsberg, Krs. Wetzlar 16, Germany.

For exchange—The periodic Cicada, T. septendecim. Desire Lepid., espec. Papil., Sphing. & Speyeria. Also Col., espec. Ceramb. & Lucan. John W. Morris, 2704 Genesee St., Syracuse 9, N. Y.

Cynipid and Itonidid galls—American species wanted; purchase or exchange for British species. Fresh or dried. D. Leatherdale, F.R.E.S., Old Woodstock, Oxford, England.

Wanted—Reprints or papers concerning insects taken in Alaska for inclusion in list of Alaskan insects. R. H. Washburn, Alaska Experiment Station, Palmer, Alaska.

Conopidae of the World wanted. Will pay 10¢ to $1.00 for pinned and labelled specimens. S. Camras, 4407 N. Milwaukee Ave., Chicago 30, Illinois.

Anisoptera—Nearctic sp. wanted for exchange, espec. Ophiog., Arigom., Aeschna, Neurocor., Somatoc., Cordulia, Dorocor., Leucor. R. D. Cuyler, N. C. State College, Raleigh, N. C.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

Parasitic Mites Wanted

Many, thick, well-fed parasitic mites from Spring Odonata and from other aquatic insects from all parts of the World. They must be removed from their hosts without injury, placed in well-dampened cotton in a glass vial (a separate vial for each host insect), packed in cotton in a metal mailing tube and sent by airmail to Dr. Paul Münchberg, (21b) Soest, Windmuhlenweg 93, Germany. Place date, locality and name of host in each vial. Correspondence in English and German.

For Your Collecting Needs . . .

BUY THE *KNOWN* BEST!

WARD'S equipment can be relied on to be of *tested* value to you. Because WARD'S has long set the standard of entomological supply, you may depend on the quality of the aids available for *all* your needs. Send for free catalog of Entomological Supplies and Equipment to *Department E 12.*

WARD'S **Natural Science Establishment, Inc.**
Serving the Natural Sciences Since 1862
3000 Ridge Road East • Rochester 9, New York

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts

Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

MEMOIRS OF THE AMERICAN ENTOMOLOGICAL SOCIETY

The Society offers for sale the 14 numbers of this important and steadily growing series of longer monographic works, all numbers of which are still in stock.

1.—Cresson (Ezra T.)—The Cresson Types of Hymenoptera (141 pp., 1916) ..... $ 3.00

2. —Hebard (Morgan)—The Blattidae of North America, North of the Mexican Boundary (284 pp., 10 pls., 1917) 5.50

3.—Munz (Philip A.)—A Venational Study of the Suborder Zygoptera (Odonata), with Keys for the Identification of Genera (78 pp., 20 pls., 1919) 2.00

4.—Hebard (Morgan)—The Blattidae of Panama (148 pp., 60 pls., 1920) 3.00

5.—Cresson (Ezra T.)—The Type of Hymenoptera in the Academy of Natural Sciences of Philadelphia other than those of Ezra T. Cresson (90 pp., 1928) 2.00

6.—Rivnay (Ezekiel)—Revision of the Rhipiphoridae of North and Central America (Coleoptera) (68 pp., 4 pls., 1929) 2.00

7.—Leonard (Mortimer D.)—A Revision of the Dipterous Family Rhagionidae (Leptidae) in the United States and Canada (182 pp., 3 pls., 1930) 4.50

8.—Rehn (James A. G. and Rehn, John W. H.)—The Eumastacinae of southern Mexico and Central America (84 pp., 6 pls., 1934) .. 2.50

9.—Pate (V. S. L.)—The Generic Names of the Sphecoid Wasps and their type species (103 pp., 1937) 2.50

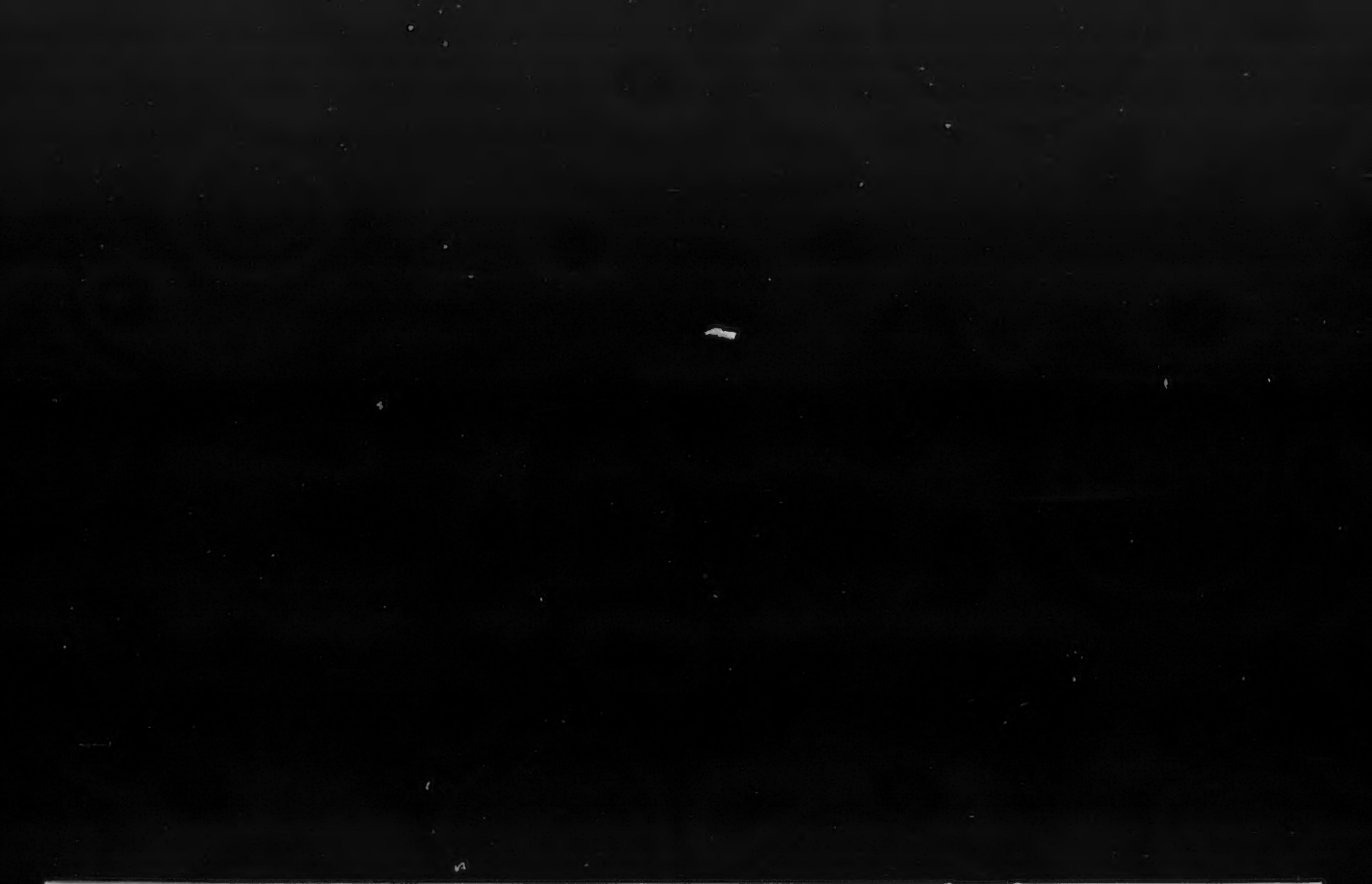
10.—Huckett (H. C.)—A Revision of the North American species belonging to the genus Pegomyia (131 pp., 9 pls., 1941) 3.00

11.—Townes (Henry K., Jr.)—Catalogue and reclassification of The Nearctic Ichneumonidae (925 pp., 1944) 15.00

12.—Phillips (Venia Tarris)—The Biology and Identification of Trypetid Larvae (161 pp., 16 pls., 1946) 5.00

13.—Braun (Annette F.)—Elachistidae of North America (Microlepidoptera) (110 pp., 26 pls., 1948) 4.50

14.—Rehn (John W. H.)—Classification of the Blattaria as indicated by their Wings (134 pp., 13 pls., 1951) 5.00

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA 3, PA.